

W

Modifications

FACTORY

Mr. - F.B.A.Ltd.
MRC. - Allied Motors Ltd.
Mr. - Madrid.
Mr. De Boeck - Nice.

Mr. -

H.

Mr.

Mr.

Mr.

Mr. Evans - Lillie Hall.

Mr. Crawford " "

Mr. - N.

Mr. Reid - Glasgow.

Instruction School.

M.O. - Mr. Walker.

Ms.

Bentley Repair Depot London.

Mr. Hancock.

D/BP.

EWI.

Mr.

BY.

EP.

Mr. Robinson - Germany

Repair Department

Kellow Falkiner (Pty) Ltd.

Dalgety & Co.

Mr. Ellis - Australia.

Mr. H.C. Rugeroni - Portugal.

Mr. Avis.

Mr. Schmidt - Switzerland.

Mr. - Spain.

Mr. F. Collyer Ltd. - Canada.



Seen

12th October 1934.

DEPOT SHEET NO. Hd.266.

FITTING OF RADIO SETS TO R.R. AND BENTLEY CARS.

Origin of information:
Hs/Wst6/MA21.9.34.

It has been observed that when resistance suppressor units are fitted to sparking plugs and ignition coils to prevent ignition interference with radio sets, the idling performance of the engine is slightly impaired. This is more particularly noticeable with 20/25 and Bentley Chassis.

Customers should therefore be informed that they may not get good ultra-idling performance with their cars when a radio set is installed.

The slow running with the engine "pulling" is not impaired at all.

The Experimental Department are working at Schemes to eliminate ignition interference by other means than by inserting these suppressors.

Hd.

Sr. - FBA. Ltd.
NRC. - Allied Motors.
Rv. - Madrid.
Mr. de Boeck. - Nice.
Sg.
C
H
Tr.
Cx.
Mr. Evans, Lillie Hall.
Mr. Crawford, Lillie Hall.
Bentley Repair Depot, Glasgow.
✓ Br. - N.

Bentley Repair Depot, London.
Mr. Reid, Glasgow.
Instruction School.
D.O., Mr. Walker.
Hs.
Mr. Hancock.
D/BP.
E/T.
Mr.
BY.
EP.
Mr. Robinson. - Holland.
Repair Department.

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2nd September 1935.

DEPOT SHEET NO. Hd.289.

WILMOT-BREEDEN BUMPERS.
Bentley Chassis.

It has been found that the "U" clips which secure the leaf springs of the bumper to the dumb iron bracket, are too weak, and one or two instances have occurred where the clip has broken on the road.

This clip has now been strengthened and it has been decided to change the clips on all cars fitted with Wilmot-Breeden bumpers.

The new clips are FB.2215.

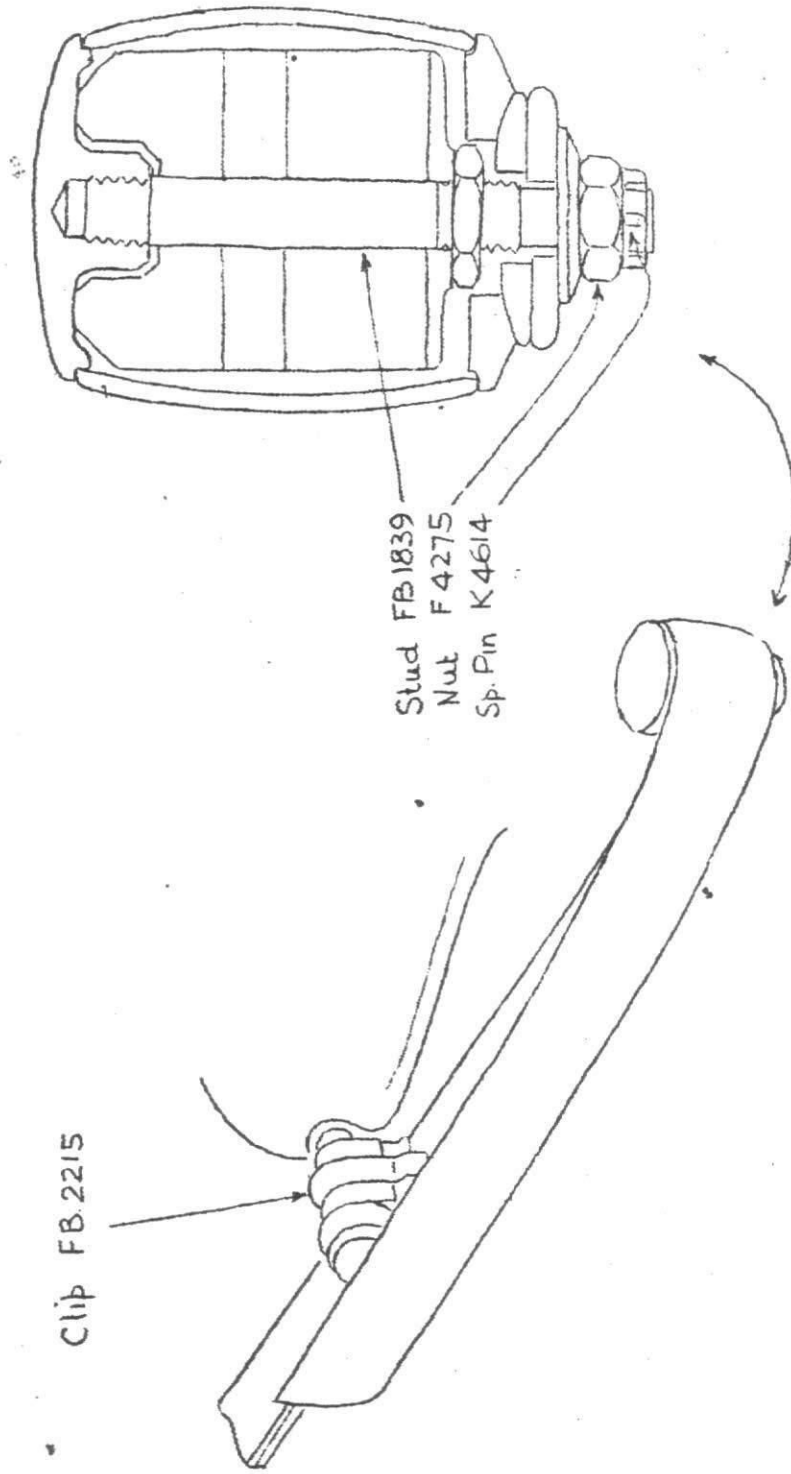
A further modification to these bumpers consists of fitting new studs in place of those at present fitted at the extreme ends of the bumpers.

These studs pass through the centre of the bob weights and they were originally secured by means of an ordinary nut with spring washer and the stud has now been altered to take a castellated nut and split pin. (See sketch attached).

Supplies of the new studs and "U" bolts will be sent to Depots as soon as possible.

All chassis modified should be reported to Works in the usual way.

Hd.



MODIFICATION TO WILMOT BREEDON BUMPER

BENTLEY CHASSIS

SB/ Hd 289

Sg.
O.
Sr. - FBA, Ltd.,
Allied Motors,
Rv. - Madrid.
Mr. de Boeck. - Nice.

H.
Tr.
Cx.
Mr. Evans. - Lillie Hall.
Mr. Crawford. - Lillie Hall.

Br. - N.
Bentley Repair Depot - Glasgow.
Bentley Repair Depot - London.

Mr. Reid. - Glasgow.
Instruction School.
D.O. - Mr. Walker.
Hs.
Mr. Hancock.
D/BP.
EWT.
Mx.
EY.
EP.
Sft.
Mr. Robinson - Hoiland.
Repair Department.

1st May 1936.

DEPOT SHEET NO. Hd.300.

WILMOT-BREEDEN FRONT BUMPERS.
3½ Litre Bentley Chassis.

Origin of Information:-
C19/C.30.3.36.

In order to avoid possible dangerous results in the event of failure of the front bumper clips it has been decided to fit safety straps to all Bentley chassis in service which are fitted with Wilmot-Breeden bumpers.

These bumpers were fitted as standard on all "FB" and "FC" series chassis and to a number of cars prior to this when specially ordered by the customer. Altogether there are approximately 331 cars fitted with Wilmot-Breeden bumpers.

The scheme shown on the attached sketch is only suitable for cars after B.2-DG. It will be seen that the safety clip is attached to the front cross-member by means of a special saddle which is clipped to the end sockets of the cross-member. The saddle and cross-member should be drilled together from below to take a 3/32" taper pin.

-continued-

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Sp.	Mr. Reid. - Glasgow.
C.	Instruction School.
Sr. - FBA. Ltd.	D.O. - Mr. Walker.
Mln. - Bombay.	Hs.
Rv. - Madrid.	Mr. Hancock.
Mr. de Boeck. - Nice.	D/BP.
H.	EWT.
Tr.	Mx.
Cx.	BY.
Mr. Evans. - Lillie Hall.	E.
Mr. Crawford. - Lillie Hall.	EP.
Br. - N.	Sft.
Bentley Repair Depot - Glasgow.	Mr. Robinson. - Holland.
Bentley Repair Depot - London.	Repair Department.

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7th May 1936.

AMENDMENT TO
DEPOT SHEET NO. Hd.300.

Further to the above Depot Sheet, a scheme has now been produced for cars prior to "D" series which are fitted with Wilmot-Breeden bumpers.

The scheme is shown on the attached sketch.

It will be necessary to cut a slot in the apron to clear the saddle and the saddle must be pegged to the cross member from below.

Supplies of material are in course of manufacture and will be forwarded to Depots as soon as possible.

Hd.

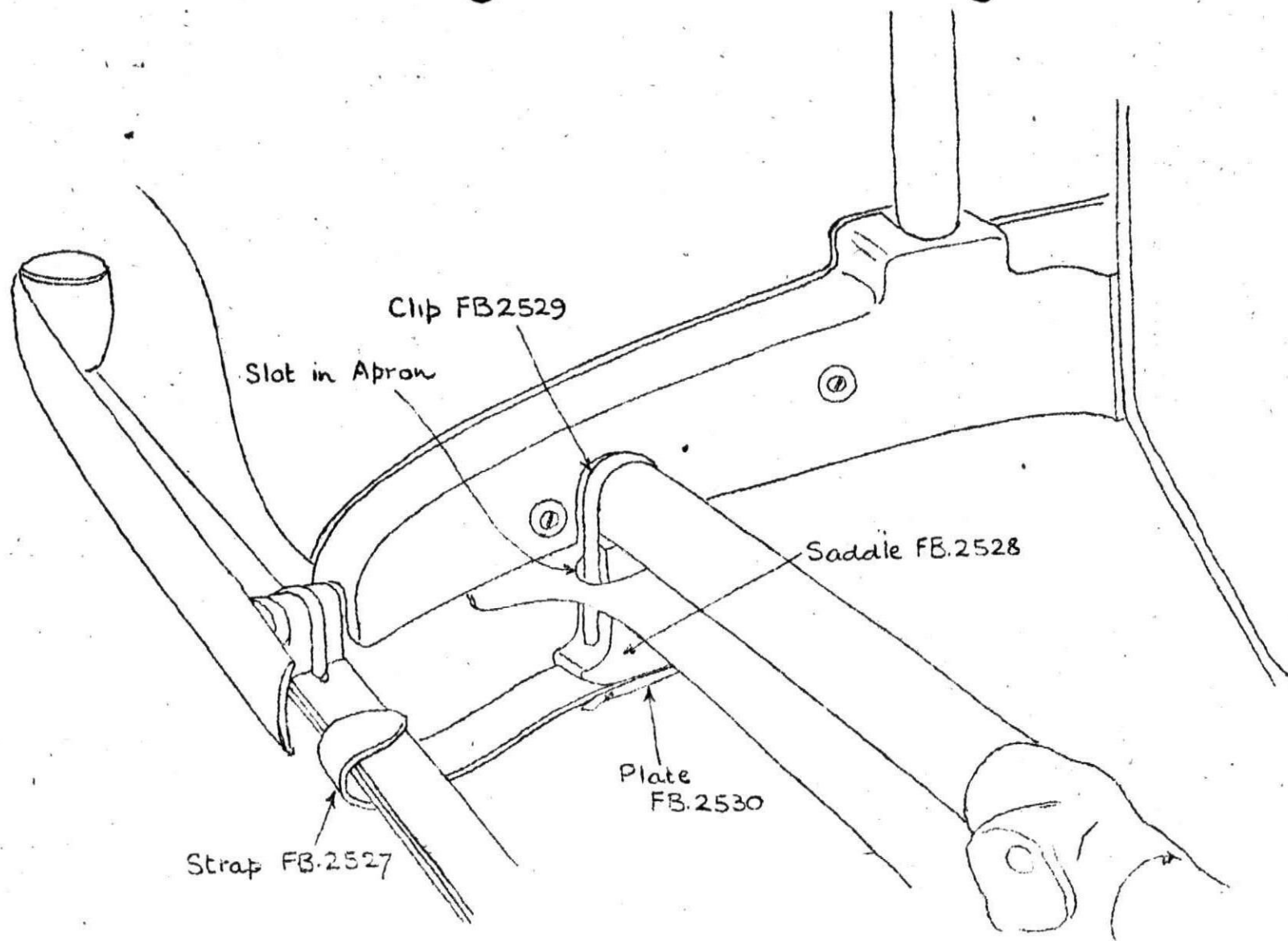
Continued:-

Another scheme is in course of preparation for earlier cars.

This modification is to be carried out as and when cars become available at Depots, and chassis which are modified should be reported to us in the usual way.

The necessary parts for "D" series onwards are in course of manufacture and will be forwarded to Depots as soon as available.

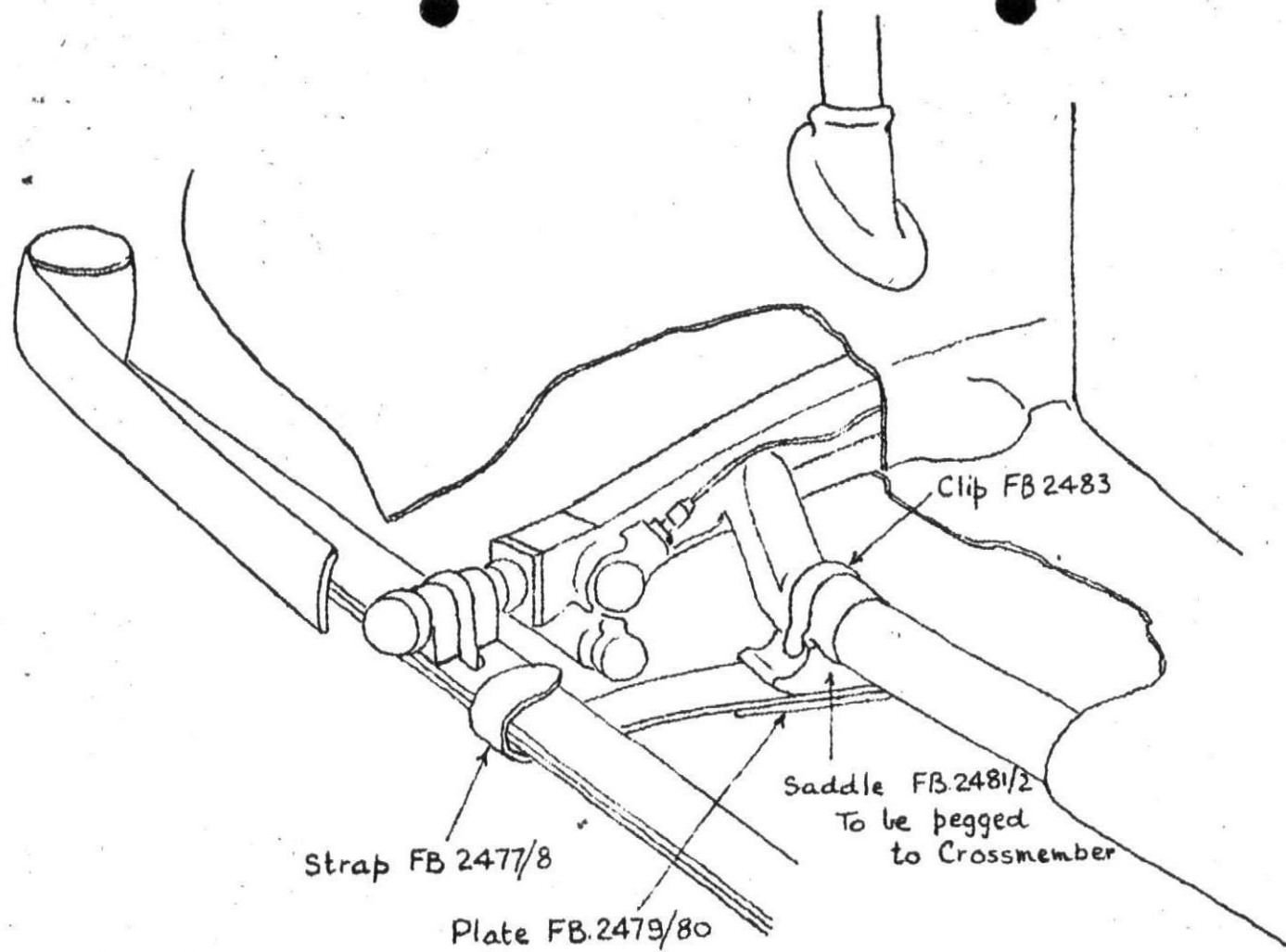
Hd.



SAFETY STRAP FOR WILMOT-BREEDEN BUMPER
A, B, & C SERIES ONLY

Hd. 300

83-7.5.36.



SAFETY STRAP FOR WILMOT-BREEDEN BUMPER.
3½ LITRE BENTLEY.

Hd 300

SB 30.4.36.

Derby Bentley Society – technical paper compilation

W

Modifications

RREC, RROC & Misc Articles

coachwork

COACHWORK REPAIRS

The majority of would-be owners of pre-war Rolls-Royces have a fair knowledge of how to tackle mechanical problems, but few have the skill or knowledge necessary for tackling repairs to coachwork. In an attempt to avert a situation where we have a club full of cars in excellent mechanical condition, with literally rotten bodywork, we have decided to include in the bulletin technical articles on bodywork problems. We hope to encourage members to tackle body jobs, and find for themselves the great satisfaction of yet another job well done.

In this first article I will discuss the kinds of body problems which are found in these cars, indicating where repairs will be within the scope of the amateur, and where professional assistance will be required. Later articles will deal with specific problems.

The majority of bodies on pre-war R-R chassis were aluminium panelled on an ash frame, and provided they have had reasonable care they can be in wonderful condition. The aluminium solved the problem of corrosion, while making the body light, but it brought a problem of adhesion of the paintwork, which was only partially solved. Close inspection of a body with cracks in the paint may well show that large areas of paint are almost completely detached from the metal, and extensive stripping of the paint will be required, back to areas where adhesion is good.

Frequently, front and rear wings have been involved in a number of scrapes during the life of the car, and considerable stopping, filling and re-spraying will have built up a great thickness of paint. The paint then becomes very unyielding, and begins to crack away from the wing. Repairs to paint of this sort are a waste of time in the long run, but complete stripping and repainting is quite feasible for the amateur.

Wings in particular are likely to suffer from fatigue cracking, which requires more than routine welding for a complete cure, and cracks often appear round windscreen pillars and other highly stressed areas of the body. Correction of these faults is best left to the expert.

Cars which have stood in the open, and open cars in particular, are very likely to have some rot in the body frame. A particularly common spot is in the body side members, below the coachbuilder's name plates, and a dig around with a knife will reveal the worst. Another spot is in the rear wheel arches, but the body frame is often metal covered here and difficult to get at. The bottom of the scuttle sides is another place worth looking at. Frame rot is very difficult to tackle without stripping the body right out, and an exercise of this kind is only justified for a car of great rarity or beauty. It can be tackled by the amateur, but working with ash is not to be confused with the average do-it-yourself carpentry in softwood. It fights every inch of the way, and that is why it was used in the first place. Anything else would have disintegrated years ago.

If you do feel like doing a coachwork job yourself, remember that it will take a long time. There are very few short cuts, but the reward is great.

BODY FRAME REPAIRS

Some time ago an article appeared in the Bulletin which quite rightly suggested that the lack of knowledge AND ability, as far as body-frame repairs are concerned, may lead us into the position where the Club have many nicely restored chassis carrying round bodies which have almost got to the stage of dropping to pieces.

Whilst the more enthusiastic members can use the restoration techniques as suggested by Messrs Wheatley and Morgan in 'The Restoration of Vintage and Thoroughbred

Cars', which is without doubt the finest book on the subject in the world, there must be many who feel that to embark on such a project without expert knowledge could result in abysmal failure! Using normal timber even an expert can get caught out with 'cross grains' and 'splitting', even supposing that he can get well seasoned timber, which is becoming harder to find in any quantity. However, there is an answer, which, whilst not maybe appealing to the purists, can result in a body-frame repair which is at least three times stronger than the original.

Marine ply strips laminated to any thickness, and to almost any shape, and to a maximum length of 8 feet!

Assuming that you wish to replace, say, the curved section behind the scuttle, which is usually made up of three or more sections of ash plank, all you have to do is obtain a sheet of marine ply and have it cut into strips rather wider than the original; make up a former using the existing section as a guide (see plate 10 of 'Restoration of Vintage and Thoroughbred Cars') and go on laminating until you have made up to the size you need... depending on how quick you are, and how soon the glue sets... if you need ten thicknesses, do five at a time, rather than try to do the whole lot at once. Once the job has set solid, you can then cut away the unwanted sections until you have an exact copy of the original. (A good jigsaw does this job very well.)

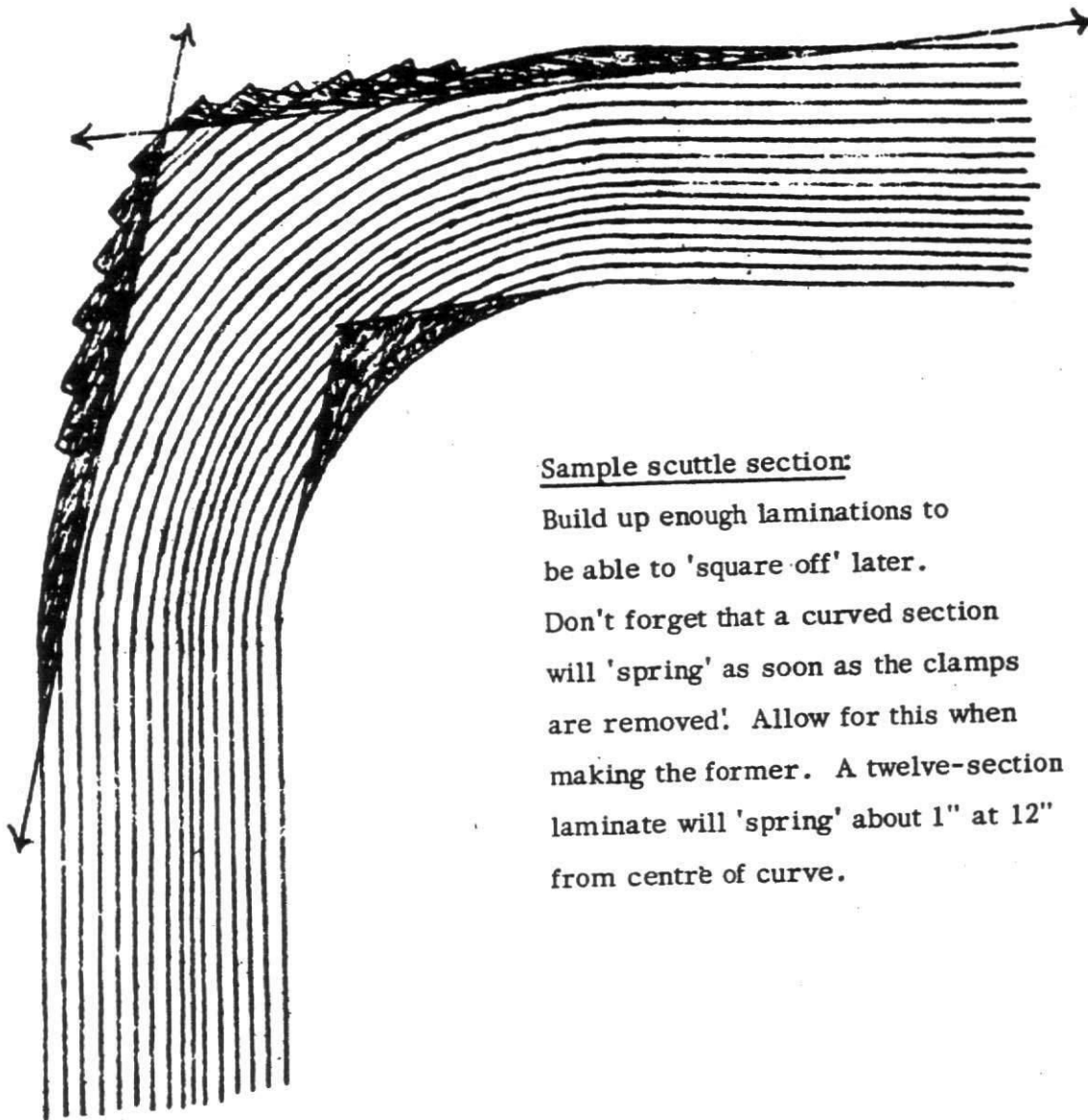
If, however, you wish to make up something rather more complicated, say the curved section from the top of the windscreen, to meet the roof, the technique is the same, but instead of strips you use complete sections of marine ply, which when set solid can be planed off to give the desired double curvature.

Although any thickness of marine ply can be used for straight sections, if you want very sharp curves, say 2" radius, 4mm ply is best, and with radii of that degree it is better to have a wet run first: i.e. bend the ply round the former having soaked it in hot water, and let it dry in position before glueing up.

The best glue, or at least the most successful one we have tried, is Evostick Resin 'W', which allows mistakes to be rectified even after it has set, by placing the section in boiling water, resetting in the correct position, and re-clamping.

Don't forget that however many clamps you have, you always seem to want more!

Douglas Wood



Sample scuttle section:

Build up enough laminations to be able to 'square off' later.

Don't forget that a curved section will 'spring' as soon as the clamps are removed! Allow for this when making the former. A twelve-section laminate will 'spring' about 1" at 12" from centre of curve.

COACHWORK REFINISHING: TYPES OF MATERIAL

The only cars which have any chance of retaining unblemished paintwork are those in museums, and any RR owner will know that in spite of aluminium panelling, his car is quite susceptible to corrosion and paintwork defects. Since it is realised that many owners would like to tackle the minor jobs themselves, we have been doing research into the differences between the many types of paint available, and this article describes the results.

Traditionally, up to the middle of the vintage period, coachwork was painted with many coats of slow drying linseed oil based paint finished off with varnish. The very low surface tension and viscosity of the paint meant that coats had to be very thin if they were not to run, and hence a large number of coats were needed. To get the best results, the paint had to be brushed on very carefully and allowed a long drying time in a dust-free atmosphere. To speed up the coach finishing process, the rapid drying cellulose based paint was developed, and due to its short drying time, spray application was necessary.

Since cellulose paint dries virtually matt and needs polishing to produce a shine, the dust problem vanishes, as all dust is polished off with the cutting paste. Recently, synthetic resin-based paints which are gloss drying straight from the gun have superseded cellulose for the lower priced cars, because less labour is needed to produce an acceptable finish. Modern coach paints have been given a higher surface tension and viscosity and enable a thick enough finish to be produced from three or four coats instead of the traditional sixteen.

The choice of the correct paint to use in refinishing an RR body is now fairly simple. Unless the car is a very early one, the original paint will have been cellulose, and any of the above paints can be applied with success to this material. The obvious choice is cellulose again, but many of these cars will be found to have been brushed over with a coach paint at some time, and although coach paint can be put onto cellulose, the reverse is not true, as the solvent in cellulose acts as a stripper to the underlying coach paint. In this case it is possible to use cellulose if a coat of sealer is applied, but a first-class job can only be obtained by stripping all the old paint off, and this can double the cost of the job. I would not use coach paint on one of these cars, as in my experience the gloss retention is not as good as cellulose and polishing of the finish is almost impossible. The choice between synthetic and cellulose paint is simple for the purist who will stick to original. Synthetic has advantages for the professional who can spray it on really smooth, but inspection of modern cars will show that rarely is a dead smooth finish attained, and the well-rubbed cellulose finish ends up smoother and with a higher gloss. My limited experience of synthetic shows it to be softer than cellulose, and if cutting paste is used on it, a mirror finish can be obtained, with no residual orange peel from the spraying, but this appears to be defeating the object of using a synthetic in the first place. I recommend cellulose as the best finish for the man who is prepared to work hard for the satisfaction of a good shine.

N.H.H.

RECELLULOSING SMALL AREAS OF DAMAGED PAINTWORK

There can be hardly a car on the road that has not got a few small spots of damaged paintwork. Signs of impending trouble on an aluminium body are bubbles under the paint surface a fraction of an inch across. These are areas where the paint has lifted from the surface, but has not yet broken. They frequently occur round windows, particularly at the bottom of the windscreen, and in other highly stressed areas where flexing of the body takes place. The aluminium bends slightly as the body distorts over bumps, and the paint, which is less flexible, becomes detached from the surface. Wings can come out in a rash of bubbles if the stone guards are missing, as every impact of a stone flung up by the wheel slightly dents the soft aluminium and breaks the paint film, allowing water in and corrosion to take place.

With the best re-spray in the world, these things will happen in time, and it is best to tolerate them rather than rush into an amateurish re-paint. Waxing over the damaged areas with a liquid wax which can penetrate through any holes in the paint and protect the underlying metal from corrosion is the best way of stopping the rot from spreading.

If you decide to tackle the job of recellulosing a small area of your car, this is how you go about it. The paint round the damaged area must be removed back to where it is firmly attached. Your small blemish is now an area of several square inches. This area must be rubbed down to a shiny aluminium and thoroughly de-greased. At this stage, a base metal primer should be applied, and if a zinc chromate etching primer is available, this should be used. Failing this, the bare metal should be well abraded with coarse rubbing down paper before the primer is applied. The primed area must now be built up to the level of the surrounding paint with cellulose filler, and rubbed down absolutely flat and level. This is the bit that always sounds so easy and yet is where the major part of the time must be spent. Do not be surprised if it takes you five evenings, alternatively thumbing and knifing on filler and rubbing it down, before you have a smooth surface. You should not start the work unless you are prepared to spend an indefinite time at this stage.

After you have prepared the surface, the simple application of two coats of primer filler from the gun, lightly rubbed down, and four coats of fin-

ishing colour will be light relaxation. When the four coats of finishing colour have dried thoroughly, lightly flat the work with 400 grade paper used wet, and then spray on the final coat of colour. After the finish has dried for 48 hours, it can be polished with cutting paste, when the production of a beautiful shine blending into the old finish will be your reward for hours well spent in preparation.

Recellulosing (cont.)

The small high pressure spray guns on the market, such as the Bridges drill attachment, are capable of good work on the small scale required by this sort of job, though they become very tedious for large areas. Whatever you do, remember to save enough thinners to clean the gun properly when you have finished.

N.H.

THE CARE AND RESTORATION OF UPHOLSTERY LEATHER

Most of us have, or would like to have, leather upholstery in our motor cars. Problems associated with leather fall into three categories: First, reupholstering; second, restoration of what we already have; and third, preserving the results achieved.

Re-upholstering

It is usually possible to use the old leather as a pattern from which to cut the new, and when doing this, the following rules should be used.

1 - Reject any leather from which hard rubbing with a damp finger will remove the finish. This is a 'split', and is only useful for panels and trims, which receive little flexing or wear.

Care of leather upholstery (cont.)

- 2 - Leave a quarter-inch margin for stitching, and a half inch for 'lasting' (or sticking down behind a panel edge).
- 3 - Never 'gimp' (cut darts out of) an edge that has to follow the outside curve of a panel. Rather 'skive' (shave thinner) and then pleat it. Use a Neoprene cement to stick leather over the edge of a panel. Lasting pliers are the tool made for the job of pulling and stretching leather tight.
- 4 - Before laying your leather, brush over the flesh side with either a latex or poly-vinyl-acetate solution. This will both preserve it, and prevent the 'creep'.
- 5 - Having marked out your stitch lines, for a few shillings your local shoe repairer will usually sew your pieces for you on a proper leather machine.
- 6 - Before you buy leather, make sure that it has not got excessive give in any one direction. Try folding it twice over, and looking to see if it cracks at the point formed in this way. If it does, then it is either an artificial, or a dry salt finish, and unsuitable for seats.
- 7 - If a piece of leather smells even very faintly of ammonia, reject it at once, however nice it looks. It will rot.

Restoration

When leather is cut right through, there is very little that can be done. However, when it is just scuffed or dull, or dirty, then it can often be restored to good looks.

- 1 - Scuffs Use softener liberally on the surface, allow it to work for about half an hour, and then iron out the scuffs and fine cracks through brown paper with the gloss side down. Use an electric iron at about the same temperature that you would to press your trousers. The surface should now be left for 24 hours, and then polished with saddle soap, or Simonized.
- 2 - Dull leather Bring up with silicone leather finish.
- 3 - Dirty leather Use either warm soapy water (real soap), or a special leather cleaning agent.
- 4 - Bad scuffs and scars Use 'Leather fakers inks and oils'.

In extreme cases, it is possible to remove the old finish, and apply a new one, provided that there are no holes, and no rot apparent. This is done by the same process used by a tanner, and will vary from one leather to another. It is a fairly ambitious undertaking, but within the average owner's scope. The writer would be happy to advise anyone attempting to do this. It has the advantage of being possible in situ and without major expense, but results depend on time, and patience.

FITTING SEAT BELTS

Anyone who has contemplated the lethal array of sharp edges in front of the driver of a pre-war Rolls will be aware that he could easily become impaled in the event of a crash. About the only reassuring point is that the weight of an R-R will do rather more damage to the opposition than he is likely to do to you. However, originality aside, there is a good case for fitting seat belts to any car. The problem in fitting seat belts is that unless they are really secure, they are worse than useless.

Dr M.C.Holderness, 81 Weeping Cross, Stafford, has fitted Britax DSB601 3-point anchorage belts to his 20/25, and will be glad to give details to any member who may be interested.

SLUGGISH WINDSCREEN WIPERS

This condition tends to be more prevalent in the cold weather and arises from the fact that the Klaxon and the Berkshire, which superseded this in the later models, has a reduction gear drive of a metal pinion driving a large fibre gear. The compartment in which these gears operate was packed with a light grease, which after twenty years forms the consistency of cold butter and makes very hard work for the motor rotating the gears. This, in turn, causes over-heating of the motor and the wires feeding it, resulting in electrical break-down. Treatment is to remove the wiper motor complete, by first slacking off the driving

CURING SCUTTLE SHAKE

The chassis of all Rolls-Royce cars of the era before independent front suspension was introduced was a rather flexible affair and on a rough road it is sometimes arguable whether the chassis or the springs are taking the greater pounding. Certainly the front end of the chassis is extremely easy to twist and to avoid this twisting completely rupturing the bodywork it was necessary to introduce some flexibility in the body mountings. In particular, all models having the cast aluminium bulkhead (dashboard, firewall or what you will) were provided with flexible rubber mountings between the top front crossmember of the scuttle and the top of the bulkhead. The general arrangement of the mountings is shown in the diagram. After thirty years or so, the oil fumes from the engine room cause the rubber to perish and it is quite possible for the rubber sleeve to disintegrate completely where it passes through the bulkhead. The effect is that the scuttle is then free to move up and down and from side to side by about plus and minus one quarter of an inch. The effect of this when one is driving along anything but a dead smooth road is rather bewildering. The scuttle top and bonnet top move independently and the impression is that they are not part of the same car. Additionally if, as is usual, the instrument panel is mounted on the scuttle, the instrument panel moves relative to the steering column, which of course is mounted in the bulkhead. The effect all of this has on one's passengers is to give them the firm impression that the car is falling to pieces - and one would like to think that this is untrue.

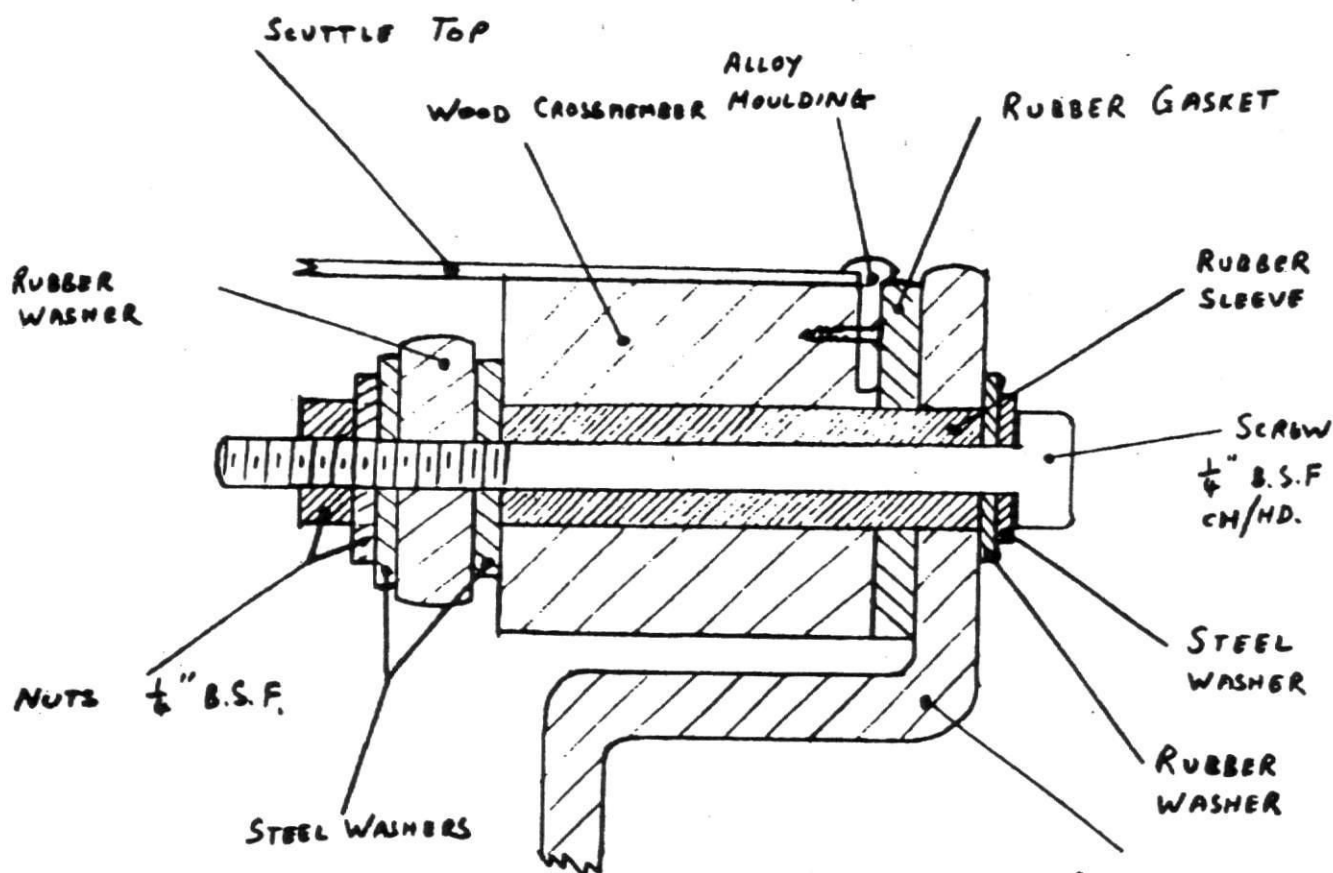
Overcoming the problem is a straightforward job in principle but may require some ingenuity in practice. It will probably be found that the rubber sleeve and the thin rubber washer on the engine side of the bulkhead need replacing, other parts being suitable for further service. The sleeve can be made from a length of rubber hose and the washer cut from a piece of tyre inner tube. The hose for the sleeve can with advantage be a piece of high pressure, fabric reinforced, fuel and oil-proof hose, which will probably be less liable to disintegrate in future. It is convenient to choose a piece of hose which is slightly smaller in outside diameter than the holes in the bulkhead and body member and slightly larger in inside diameter than the clamp screw. The rubber can be cut about 25 per cent longer than its final installed length. It is relatively easy then to slide the rubber sleeve into place, followed by the screw and washers, and as the whole assembly is clamped the rubber sleeve will swell to the required final size. Typical final dimensions are 2 inches long by $\frac{5}{8}$ inches outside diameter by $\frac{1}{4}$ inch inside diameter, and these can be obtained by compressing a piece of hose $2\frac{3}{4}$ inches

Curing scuttle shake (cont.)

long by 9/16 inches outside diameter by 9/32 inches inside diameter. Some juggling with the initial position of the sleeve may be required to yield the required final position. The clamp screw is provided with a screwdriver slot at the bulkhead end and the leverage is such that more than adequate clamping pressure is available by applying a screwdriver to that end.

The job looks and sounds simple enough, but a weekend should be allowed, as removal of the old bits of rubber calls for considerable surgical or dental skill. Because it is impossible for one person to reach both ends of the clamp screw at once, it is vital to have an assistant.

N.H.H.



TYPICAL FLEXIBLE JOINT BETWEEN

SCUTTLE AND BULKHEAD

ALUMINIUM
BULKHEAD

N.H.H.
12.3.67

STEEL BODY PRESERVATION

Having found a good postwar steel-bodied Rolls-Royce or Bentley, the most urgent job is the one of trying to preserve the body.

I have battled with this problem for nearly twenty years without much success. I sold my under-sealed Mark 7 Jaguar when it was eleven years old mainly because I could see no end to repairing, with fibre glass at yearly intervals, holes as big as the palm of my hand. Fortunately the Swedes came up with the answer a few years ago and the method was adopted here about 1963.

Dinitrol liquid and Adup underseal are distributed by Plow Products of Portlock Road, Maidenhead. Halfords sell a Dinitrol aerosol spray for 12/9 and a quart tin of Adup Gold Seal for 8/6. If required by the gallon the price is 35/- and 29/- respectively. Dinitrol is a rust proofing fluid with fantastic creeping powers in warm (60° F) temperatures. Adup is coloured gold to ensure that you can see that you have given adequate coverage, and is similar to a bitumastic underseal. I strongly recommend writing to Plow Products for their literature on the subject.

I am assuming that your car is not yet in holes requiring fibre glass or badly blistered either, but showing signs of rust here and there, indicating that rust exists in many hidden places. I treated my own car two and a half years ago and see little sign of further deterioration.

On a warm dry summer day remove the wheels and wash under the wings so that they will quickly dry off and allow you to deal with them at once. Spray or paint the inside edge of the wings with Dinitrol and then paint again with the Adup Gold Seal, even before the Dinitrol has had time to dry. Remove the front of the sidelamps and I'm sure you will find that the inside is a mass of rust. Using the extension supplied with the aerosol can, inject the Dinitrol right to the back of the housing and also into the front of the housing, which extends for a couple of inches forward of the lamp glass position. A good soaking will cause the Dinitrol to go clean through the welded joint and appear on the underside of the wing, though a considerable time may elapse before you notice this.

The valances below the doors possess several drain or ventilation holes, and again using this extension spray in the holes until liquid is seen to trickle out of the next hole. Using sunlight and a mirror, you may conclude that the inside of your doors are in excellent order and that the spray may do more harm than good by soaking into and staining the leather trim. If the doors need treatment, the trim had better be removed first.

If the thought of preserving a steel body depresses you, remember how much cheaper the cars are to buy and visualize the rotting wooden frame members of prewar bodies and see the heaps of dust and worm on the ground when the body gets a good thump. To return to the doors. Even though in good internal order, at least one of them is probably showing signs of rust creeping out of the top of the door at the window sill. Using a tiny camel hair brush, allow Dinitrol to soak into the crack to prevent further creeping, treat the visible affected area with Kingston Kurust or Jenolite, and undercoat and paint in the usual way.

The problem of preventing dirt, and the debris from trees, choking the rear roof drains has been well solved on the Bentley by means of trim pinned round the sliding roof. It does not even seem to be necessary to blow compressed air periodically through the drain channels, from below, to clear them. Unfortunately rusting starts where the trim is pinned to the roof. Treat the same way as the window sill but with greater care to prevent Dinitrol going where you don't want it.

Steel body preservation (cont.)

These last two items should be added to my previous article on buying a car, and will help to establish whether the car has been recently resprayed or has spent five days a week for years in the station car park. Incidentally, it is virtually impossible for anyone but the manufacturer to paint a thin line on the waist of the body or round the wheel discs without it being obvious that this has been done by hand, and therefore that you are looking at a respray no matter how brilliantly it has been done.

To finish, if you aren't fed up by now, examine the body as high up as you can see from underneath, just rearward and forward of the rear wheel arches. The undersealing at this point will probably have disintegrated and extensive areas of rusty metal be visible. More work with Dinitrol covered by Adup and now the job is done. Correction — spray inside the box sections which carry the chromed door stays, also the bottom of the central door pillars. This last item I leave to your own ingenuity.

Other parts of the chassis and body may require treatment, but remember that Dinitrol is harmful to natural rubber, will appear to stain cellulose through remaining in the pores, if not wiped off, and will creep under and lift paint if rust is present. It is not a once and for all cure but will last one or even two years at a time, or until you deem further treatment necessary. Used with care and common sense, it is the most effective way of preventing these steel bodies from falling to pieces from the inside and ruining a handsome car.

O.C.HODSON

Postscript: Dinitrol is now marketed under the name Supertrol 001 (December 1968).

BONNET REMOVAL

It is fairly easy to remove the bonnet of the small R-R cars and I have, on occasion, removed and replaced a 20/25 bonnet single-handed. However, even when two people are available, the increased size and weight of the PII bonnet can cause problems. A little 'in situ' dismantling makes life a lot easier. The answer is to remove the two side pieces from the assembly by pulling out the hinge pins. The hinge pins are a sliding fit in both halves of the hinge, and provided they have been properly lubricated, can be pulled out fairly easily once they have been driven out about 6 inches by means of a brass drift applied to the rear ends. The pins are in fact hollow steel tubes with caps on their ends and they must not be squeezed or bent or they will suffer seriously. As each side pin is pulled out, the bonnet side must be supported to stop it falling off the car.

With the two sides removed, the top pair of pieces can be handled much more easily. Removal is made much easier if the radiator stay is removed from the radiator and bulkhead first. This avoids it getting tangled up in the bonnet stays fitted to the later bonnets.

Re-spraying of bonnets is often simplified if the bonnet is split into parts. The bonnet also takes up less space in the garage if it is dismantled.

PETER GRANGE JACKSON on BODY BUILDING

1926 PI KO 1894

Having run a 20/25 for five years, 1960 saw me looking for a 40/50 to rebuild, purely for the interest and fact that it would when finished be more potent and satisfy my desire for more performance than the 20/25.

I knew enough about the marque by this time to look for something with a cast-iron head and front wheel brakes. This cut the choice down to late Ghosts or pre-28 PIs (how nice to be able to choose). I turned down a very nice PI limousine with grebel lamps at £80 as being too complete and not needing much doing to it and also refused a 1913 Ghost at £160 as being too far gone. I eventually saw a PI advertised under a box number and wrote to find details. It turned out to be a hearse being sold as surplus to requirements by the motor museum at Beaulieu. I had a letter from the engineer, who gave me the lowdown mechanically, and I went to see it. It did run very well as a matter of fact, but there were no spare wheels, wheel spanners, starting handle or mascot, neither handbook or proper exhaust system. I closed the deal at £45 with Lord Montagu and made arrangements with the engineer to fix the temporary exhaust and find a spare wheel. The following weekend I went down to Beaulieu and picked it up. I drove it home across Salisbury Plain, sometimes reaching 73mph. I was not to learn until later that I had two broken springs and ten spokes gone in one wheel. I was not, as it transpired, going to drive it again for nearly seven years.

Work started almost immediately. I had to beat the body apart with a sledge hammer in order to get it into some old stables I had prepared to take it. Once in, I started overhauling the mechanics of the running gear and exhaust system. The engine appeared good so I left well alone here for the time being. I relined the brakes and bored out the brake drums (see earlier Bulletin). I made new silencers and exhaust pipes. I made new bushes for the universal joint, new shackle pins all around and rebuilt springs out of two complete sets I had by then. I obtained several hand spares from various sources and got all the bits I needed before I started work seriously.

After some months I decided that I was getting nowhere very fast, and decided that if I did

REPLACEMENTS FOR THOSE LOST KEYS

I have recently made myself some keys to the barrel locks on the doors and thought that other members may be interested as it is a job that can be done at the kitchen table.

The keys of course had been lost, but fortunately the bolt was in the unlocked position and the barrels could be withdrawn as described in the Technical Manual. That is, the small set screw is removed and the barrel unscrewed.

Inside the barrel there are four pins divided at different points which prevent the inner barrel rotating in the outer barrel. The idea is to hold each pin in the open position by inserting a piece of aluminium foil between the two barrels.

Procedure

- 1 Remove rotating cam at back
- 2 Insert aluminium foil between the two barrels at back
- 3 Adjust back pin up and down with end of blank and gently push foil until it slides through joint in pin (fig.2)
- 4 Continue for all four pins removing the blank as you go
- 5 When foil has split all four pins, rotate outside barrel 180%
- 6 Slowly withdraw inner barrel and watch the pins and springs in the bottom (fig.3)

7 Cut key so that pins are flush

With a little patience and of course a little luck it is surprisingly simple.

B.J. GAULD

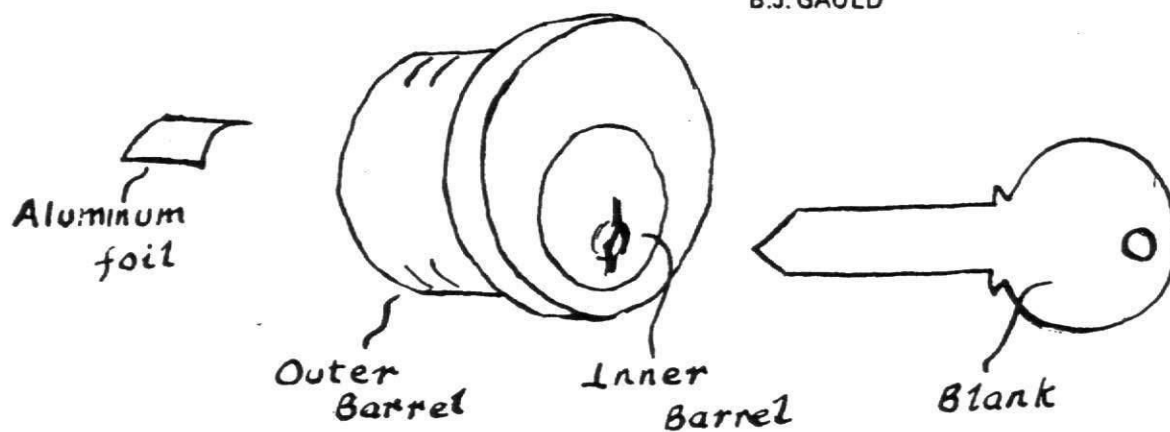


FIG. 1

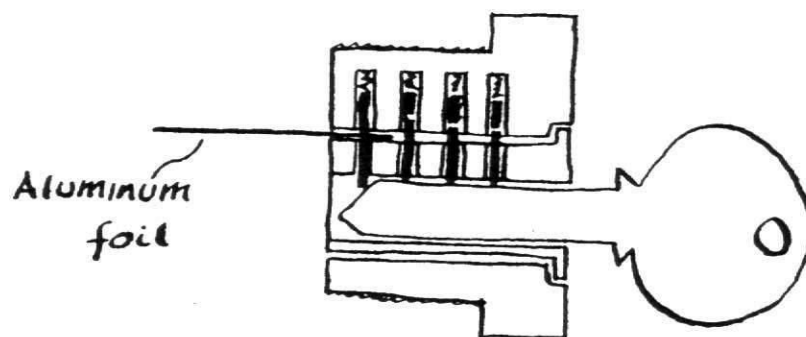


FIG. 2

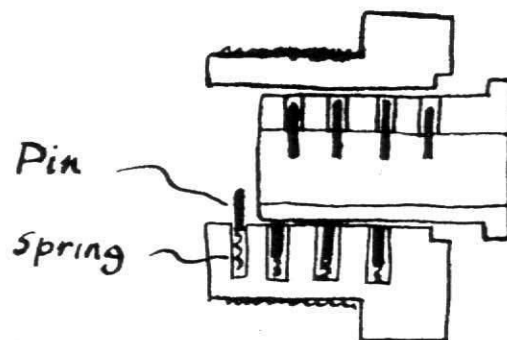


FIG. 3

DOORS THAT HAVE DROPPED

When a car has been in use on and off for 30 to 40 years, it is to be expected that the body will need attention. This applies in particular to the doors.

A limousine built about 1930-35 could have four doors hung on brass-built hinges with the centre pins outside the body. The constant opening and shutting of a door will wear the hinge and pin, especially on the bottom hinge. The weight of the door and the slackness of the hinge pins will cause the door to drop. To check this, open the door to 45°, place a hand under the door and lift, watching the hinges for movement. If the movement is considerable, the hinges need new pins.

To fit new pins to all the hinges would entail a lot of work, and as it is the bottom hinge

that needs most attention, it should be possible to fit a new pin to this hinge without removing the hinge from the body. To do this, first slacken the screws that secure the hinge flaps to the body by half a turn. Next shut the door to its correct position. Then punch out the pin with a parallel punch smaller than the pin itself.

Decide the size of pin required and also the size of reamer which would allow the pin to be a good fit. It should be possible to reamer out the brass on the bottom hinge by inserting the original pin from the bottom of the hinge till it engages with the lug on the door flap, thus keeping the hinge in line: having slackened the screws of the hinge flap allows tolerance.

An engineer friend could be of great assistance in deciding the size of pin and perhaps supplying the same with the correct reamer for the job. When the brass has been reamed to satisfaction, the new pin should be greased and knocked in. The old pin will of course be taken away when the reamer has passed through the first lug. (It has always been a rule with coachbuilders when fixing hinges with five lugs for the flap with three lugs to be secured to the body and the flap with two lugs to the door.)

The screws that were slackened on the hinge can next be tightened. Open the door and close gently to see if the door needs further lifting. If the door clearances show this to be necessary, consider re-pinning the top hinge.

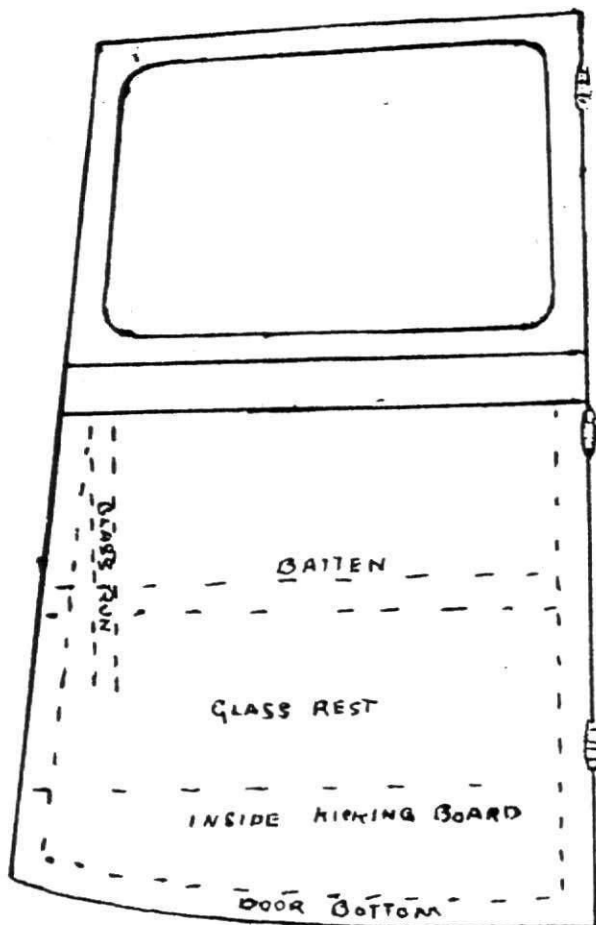


FIG. 1
SLACKEN THE OUTSIDE SCREWS ON BODY FLAP
OPEN DOOR AND LIFT. INSERT PACKING ON
OUTSIDE OF HINGE
TIGHTEN SCREWS
TEST HINGES WITH STRAIGHTEDGE
WATCH DOOR CLEARANCES

Hinge pins often wear badly when the hinge centres are not in line. This can be tested by a straight edge checking the flat part of the flap and then the barrel. A hinge can be adjusted by packing as shown in Fig. 1, but if altered test with a straight edge so that the three hinges are in line.

Should these attempts fail to position the door correctly, it could be that the body has settled on the chassis and a little packing between bottom-side and chassis may give the desired effect. For example: packing the bottom side in the centre of a doorway and bolting down each side has a tendency to open the doorway, while packing at the hinge pillar and bolting down on the shut pillar will cause the door to lift. The correct position of packing can only be arrived at by trial.

A door on a body 30 to 40 years old would probably have a slam lock, striking plate and dovetail. The striking plate and dovetail would need attention if the door has dropped. The dovetail could be built up and refitted and the striking plate could be unscrewed and taken in to overcome wear. This should stop rattle. In the case of buffers and cups, new buffers might be needed.

Twist on doors is another common trouble. Should a door stand out at the bottom it is possible to improve it by re-fixing the garnish rail and lining board inside the door when the door is twisted in the direction required. It is advisable to twist the door rather more than seems necessary. One way of doing this is to keep the door out at the top and with the help of another person push the door in at the bottom while the garnish rail and lining board are secured by a few new screws.

Should it be necessary to remove a door entirely, first release the door stop. Next shut the door and remove the hinge pins with a punch, then open the door gently and forward until the centre lugs are free. The door will probably be quite weighty, so be prepared.

W.J. GRAINGER

Beware the Dreaded Jiggers

by Derek Taylor

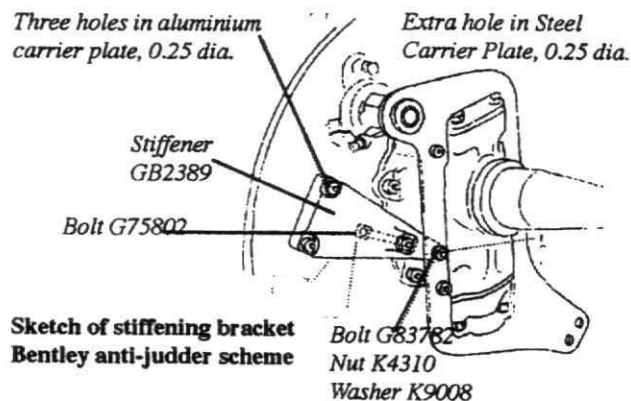
The 'Jiggers', or 'Morning Sickness' as it was known in the Company prewar, was a vicious judder on the front brakes for no apparent reason. Often it occurred on the first application after standing overnight. It seems to have affected Bentleys more than Rolls-Royce and some cars never had this trouble while others were troublesome from new. Many theories were put forward as to the cause and many cures suggested, none of which worked.

My 3-1/2 did it fairly often when I first had it over thirty years ago, but gradually the intervals lengthened and lured me into thinking that I had cured it, only to have it pop up again at some embarrassing moment. The judder can be so bad that headlamp glasses can crack and spiders fall out, coils go open-circuit and general mayhem ensue. To anyone who has not suffered it yet the only thing to do is lift the foot right off the brake the instant the judder starts and immediately reapply. This will stop it dead and it will not recur that day. However, as one is obviously trying to stop in a hurry this does not come naturally, but if you keep your foot down it gets worse and worse.

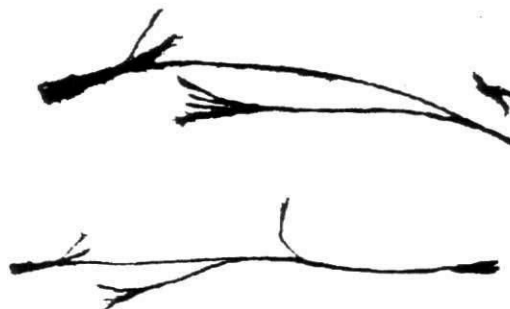
It happened to me last year after a gap of four to five years on my way to the 20hp weekend. The judder was quite brief but was from approximately 60 mph. Afterwards I checked round, put the headlamp spiders back and carried on. All seemed well. The next week, as I was cleaning round, I noticed some strange 'knitting' hanging down behind the nearside front wheel. On investigation it turned out to be the front brake cable with 50% of the strands broken (see photos) and 1/2in longer than usual.

I sent both cables to a well-known company, with the precise length as specified in 'Rolls-Royce Small Horsepower Brake Systems', and they came back in due course - you've guessed it - with one 1 1/2in longer than the other!

The cure for the judder that the Company devised (which 4 1/4 drivers inform me did not always work) was a bobweight on the backplate attached to the linkage. this was fitted to 4 1/4s after B122JD and to all earlier 4 1/4s retrospectively as they went for service. Some 3 1/2s may also have been fitted with the modification if owners complained enough. The ex-George Eyston 3 1/2 - B24DG - has bobweights, but whether they were fitted by the Company or the axle changed to a 4 1/4 one at some point is not clear.



R-REC Technical Manual 5, 2000



Depot sheet No. Hd355 gives the details and is reproduced here.

1st September 1937
 DEPOT SHEET NO. Hd.355.
 BENTLEY FRONT BRAKES.
 Origin of information:
 Rm/AFMI4/JH.24.8.37.

It has been decided to fit the anti-judder device to all 4 1/4 litre Bentley cars not already fitted with it.

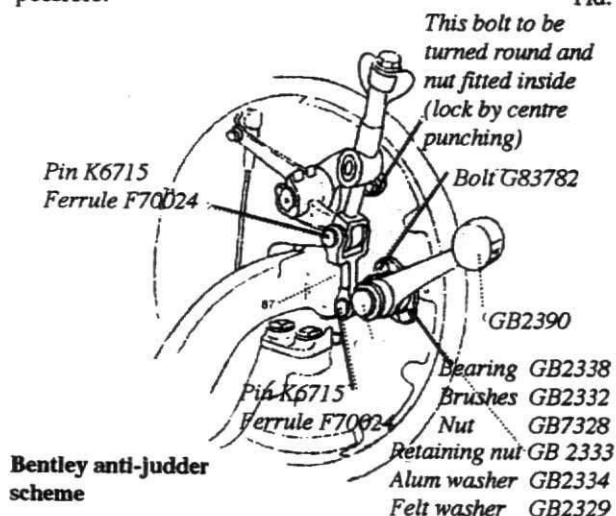
This will apply to series GA., GP., KH., HM., and up to B.122-JD., after which point the device was fitted on production.

The device consists of a pivoted bob weight mounted on a bearing attached to the brake carrier plate. This bob weight is so connected to the brake actuating mechanism that its inertia is in opposite phase to that of the brake mechanism and therefore cancels out any torsional oscillation. The sketches attached clearly show the method of assembly.

Two drilling jigs are available for drilling the additional holes required. HB.15750 is for drilling the three holes in the aluminium carrier plate. HB.15751 is for drilling the extra hole in the steel carrier plate. It is important to note that the forward bolt securing the actuating shaft bearing to the brake carrier plate should be turned round so that the bolt head is outside instead of inside. The nut should be locked by centre punching. If this bolt is not turned round it will foul the actuating mechanism when the brakes become worn.

Supplies of the necessary material are in course of manufacture and will be forwarded to Depots as soon as possible.

Hd.



Bentley anti-judder scheme

Roy Creech - on Coachwork

A FEW HINTS FOR SMALL OR LARGE JOBS

(This is my way - there must be others.)

1. Mark everything you remove from a car using masking tape.
2. Take photographs - very handy to remind you where parts go, after a few months one forgets.
3. Mark metal parts with a punch or letters. If using a punch one dot is . OSFD, .. OSRD, ... NSFD, NSRD (mark on rear side).
4. List all chrome parts. I use an invoice book with a carbon sheet, so that I have a copy to check parts when returning from the chrome platers. I provide rough drawings of most parts so that if parts get lost I know what they look like. This also helps when reassembling parts.
5. If one finds screws or bolts difficult to remove *do not lever part off*, just drill out the head of the screw or bolt and lift off, leaving *no damage*. You can then remove the rest of the screw or bolt.
6. Swarfega is very good for cleaning vinyl roofs on Rolls-Royce Shadows as it gets right into the grain. For bad parts use a soft bristle nail brush and wash off with soap and water, then leather off. *The roof should be washed every time you wash a car (it's just as dirty).*
7. For anyone who does not know what Dum Dum (Glaston Putty) is: It's black and very similar to Plasticine. It has many uses, i.e. to seal windcreens front and rear, also small gaps between panels etc. All prewar cars used this to seal screens, and postwar cars up to, say, 1955. If using Dum Dum remove surplus with a medium screwdriver, then clean off with Swarfega. One needs quite a few old pieces of rag for this, but you will end up with a nice smooth finish.
Note: It may ooze out some more after a few days. If so, repeat as above.
8. To find the correct size of rubber to use on doors or boot lids, use lumps of Dum Dum, place on the door surrounds, shut the door or boot lid and Dum Dum will squash down to the correct size. Measure the same and you've got it!
9. Best plywood to use is 3mm (1/8in) birch for door panels. One can feather the edges down without the plywood breaking up.
10. Drill out all rivets on the domed side (the posh side). Then one can find the centre.
11. Hidefood your leather at least once a year. *Never use thinners on leather.*
12. Glues to use - all Dunlop. For sticking leather to leather or wood; or cloth to cloth or wood: L.107.
13. For sticking cloth to metal; or leather to metal: S1358 or 758.
Note: If using cloth you must coat with L.107 first to seal same, then apply S1358 or 758.
14. S1358 is a *heat resistant* glue. Good for rubber strips on a car.
15. Glue for carpets and underfelts: 889.
16. With all the above glues, I coat both surfaces with a thin coat and let semi dry.
17. For roof and bonnet insulation I cut felt into approximately 12in squares, then use S1358 glue. There is no overall weight, and they won't fall down.
18. Never shut down a hood when wet and never leave a hood shut down over the winter, as you may find it has *shrunk* by the following spring and will not close.
19. To owners with cars with batteries under the floor - *please do not leave the floor open while the car is laid up over winter or long periods*. Mice may get into the car and eat the material, as lots of my clients have found to their cost. (B217/55)

Corroding Shadows

Tony James

Water entering the air intake on the scuttle between the windscreen and the bonnet of the Shadow drains away through flexible pipes. These pipes should end below the front sills, immediately behind the front wheels. These pipes can shrink, resulting in the sills filling with water, then rust.

Therefore, a piece of pipe should be added so that it exits below the sill. Access to the pipe is achieved by removing the first sized aluminium plate at the bottom of the inner wing, just behind the front tyres. (B205/50)

Prewar Car Colour Schemes

by Colin Hughes

I left from the earlier parts for later discussion fine lining and moulding colours, Bentley schemes, and any data that came as a result of the earlier notes. I wait for more to come.

ARCHAEOLOGY

Let me start with some advice on how to find original paint and trim materials on a car you wish to get back to original appearance. I assume that it may have had some past restoration, but even if the scheme is the original you need to know where to find unfaded parts.

Paint. Very often the door shut faces at the hinges still carry original paint in an area away from the light. Even after a respray you may find these missed or, if not, they may not have been stripped so that progressive rubbing down can reveal the original colour. Beware that occasionally coachbuilders used odd colours as guide coats for rubbing down, and these should not be mistaken for the original scheme. Guide coats often

appear under mudguards beneath stoneguards as well.

For body side colour, removal of the scuttle side ventilators can reveal original paint. Occasionally where beading or plates have been fitted to conceal fatigue cracks, original paint may appear beneath. Body top colour may be found on the moulding top edge when a fabric or leather roof is removed. If not, the windscreen surround is another area. Where a cheap respray has been done, look behind door handle escutcheons, side lamp bases, and wing piping.

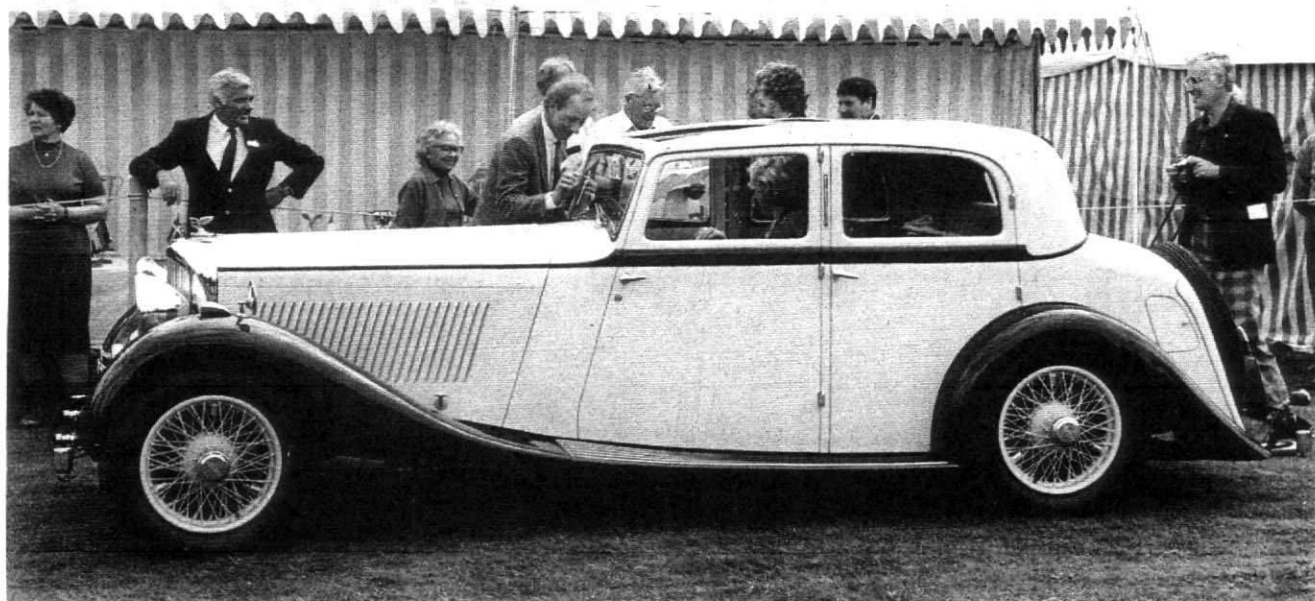
Lining. More difficult to find: usually this has been rubbed off the moulding before a respray. You may find traces where the moulding turns into the door shuts, or on louvre edges. It may be better to go back to basic principles to choose the colour. See below.

Leather and upholstery. Find unfaded or un-Connollised parts under seat cushions and under seat

bases, or by separation of stitched folds. If the leather has been replaced, then look for original carpet with leather binding nailed to the floor. Often only those loose carpets have been replaced in a quick retrim. Alternately, look for leather under old tacks that many retrimmers fail to remove when replacing door trims and seat surrounds. A similar approach applies to headlining material; some is usually still tacked.

Carpets. As mentioned, look for carpet nailed to the floor. Cars with bucket seats often do not get the carpet on the back of the seat replaced; it will be unfaded under the bottom of the back. The best place to find unfaded original carpet is under seat runners.

Hooding. Even if the main hooding has been replaced the original material may still cover the hood sticks. If not, look again for original tacks.



C. Goldberg's 1934 3½ litre Park Ward sports saloon, B126FB, showing moulding contrasting the body colour, and in this case matching the wings and running boards. In this scheme the two tone is a stronger contrast than many contemporaries. This car was originally black with a fawn line matching fawn upholstery.

FINE LINING

On pre-1914-18 war cars, mouldings or beadings were either elaborately lined or not lined. The complexity of a 'Roi des Belges' tourer made body lining usually unnecessary, because the beading and mouldings made the surfaces interesting enough. However, those bodies that reflected traditional coach styles could be elaborately lined, especially if the owner had a traditional family coaching colour scheme. Even if the body was not lined, box lining of bonnets and lining of artillery wheel spokes and rims was common.

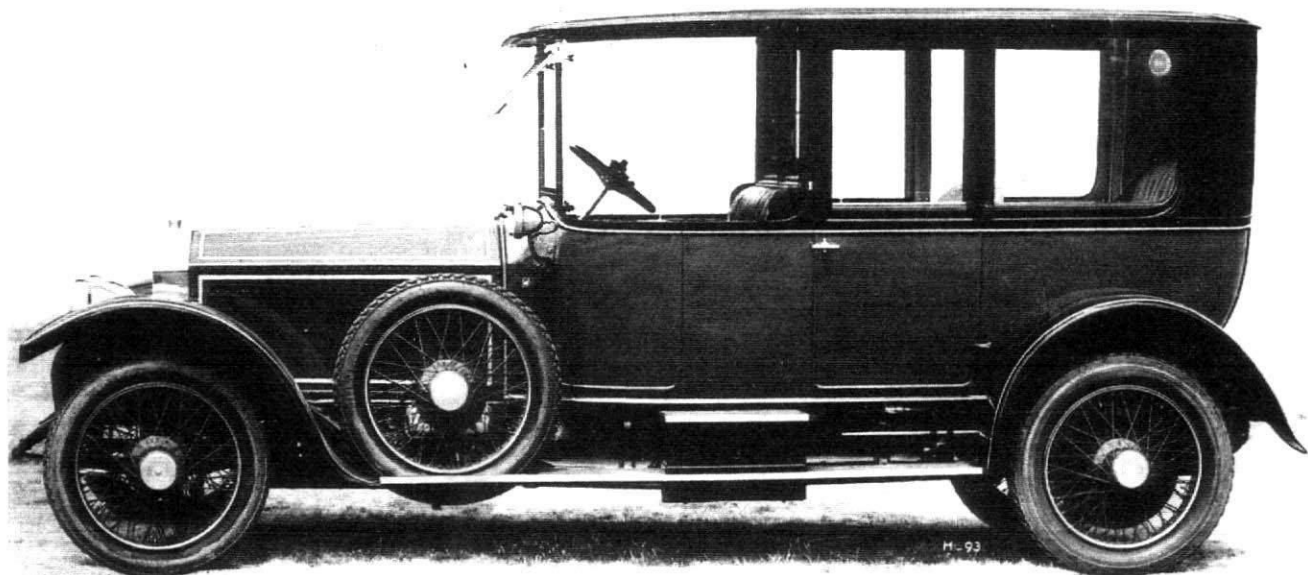
In the immediate post-Great War period, where the body waistline mouldings started at the windscreen pillar and the design of bonnet hinges and scuttles did not suit lining, it again was usually limited to coach-related schemes, in which side panel colour could be outlined by a raised moulding carrying a fine line. There is, however, a number of cars that carry the moulding round beneath the windscreen, allowing a continuous line at the waist.

Once bonnet hinges were concealed, allowing the moulding line to run the length of the car, the traditional one-sixteenth inch line on the lower moulding edge became common. It is extremely rare for the line to run on the panel edge beneath the moulding: only do this if you can find records to prove it. Around 1929,

PARK WARD BENTLEY DROPHEAD COUPÉ COLOUR SCHEMES

Possible paint, upholstery and hood combinations

Paint	Upholstery	Hooding
Black	Black	Black
Black	Blue	Black
Black	Blue	Blue
Black	Blue-grey	Grey
Black	Blue-grey	Grey-blue
Black	Brown	Black
Black	Brown	Brown
Black	Brown	Fawn
Black	Brown	Grey
Black	Fawn	Black
Black	Fawn	Brown
Black	Fawn	Fawn
Black	Fawn	Grey
Black	Green	Black
Black	Green	Fawn
Black	Green	Green
Black	Green	Grey
Black	Grey	Grey
Black	Plum	Fawn
Black	Red	Black
Black	Red	Fawn
Black	Red	Grey
Black	Red	Grey
Black	Red	Grey/maroon
Blue	Blue	Blue
Blue	Blue	Fawn-grey
Blue	Blue	Grey
Blue	Grey	Grey
Blue/black	Blue	Grey
Blue/black	Fawn	Fawn
Cream	Blue	Blue
Cream	Fawn	Golden brown
Cream	Red	Red
Cream/red	Red	Red
Dark red	Fawn	Fawn
Dark red	Grey	Fawn



1921 Hooper limousine (either 21UE or 38UE), supplied to the Emperor of Japan, showing the broad line on waist and lower body, wing edges and wheel rims.

PARK WARD BENTLEY DROPHEAD COUPÉ COLOUR SCHEMES
Possible paint, upholstery and hood combinations

<i>Paint</i>	<i>Upholstery</i>	<i>Hooding</i>
Dark red	Ivory	Fawn
Dark red	Red	Fawn
Dark red/black	Grey	Fawn
Dark red/black	Red	Grey
Fawn	Brown	Fawn
Fawn	Fawn	Fawn
Fawn	Red	Red
Fawn/Apple green	Brown	Brown
Green	Fawn	Black
Green	Fawn	Fawn
Green	Green	Grey-fawn
Green	Green	Green
Green/black	Green	Grey
Green/black	Green	Black
Green/black	Light green	Black
Grey	Blue	Black
Grey	Blue	Blue
Grey	Blue	Grey
Grey	Blue-grey	Grey
Grey	Green	Green
Grey	Grey	Grey
Grey	Grey	Black
Grey	Red	Grey
Grey/black	Blue	Grey
Ivory/blue	Blue	White
Purple	Grey	Grey
Tan/brown	Brown	Golden brown
Two-tone blue	Blue and Grey Luxan	Blue mottled
Two-tone green	Green	Green mottled
Two-tone grey	Black	Grey
Two-tone grey	Grey	Grey
Two-tone grey	Light Green	Grey
Two-tone red	Fawn	Fawn
Two-tone red	Red	Golden brown
White	Black	Black piped white

lines started to appear on wheel discs, and soon the discs had raised ribs that could carry a line matching the body lining. When bonnet louvres became common, from 1931, the edges of these could be lined: a practical way to improve resistance to polishing.

Around 1932, introduction of all-metal roof skins allowed a smooth surface to the upper body sides, including the door surrounds, so that the designer could make the moulding have a definite top, as well as a continuous bottom edge. This made it possible to split the lining at the scuttle to run on the top and bottom edges, either returning to a single line around the rear of the body or to follow a dropping lower moulding edge down forward of the rear wing.

Where the moulding terminated on the rear quarter, lining was uncommon, but could be run to a point at the end of the moulding. Even if the mounting did not suit lining, the disc ribs could still be lined. Usually a car with a chrome moulding would have chromed disc ribs, and therefore no lines anywhere.

Multiple lines appeared in the mid-1930s, except where coaching colours had featured them earlier. Seldom were more than two colours used, and generally double lines were more common than higher multiples. Three line schemes usually flanked one colour by another colour on either side: black cars might have a



WRB34, 1934 Wraith Park Ward saloon, showing lining splitting at the scuttle to follow the top and bottom moulding edges.

PARK WARD BENTLEY SALOON BODY COLOURS 1933 TO 1939

Colour	1933/4	1935	1936	1937	1938	1939	Total
Black	51	110	81	51	34	15	342
Blue	4	6	12	7	5	3	37
Brown	0	0	0	0	1	0	1
Cream	0	4	1	1	0	0	6
Deep red	1	1	6	1	1	1	11
Fawn	1	0	3	0	0	0	4
Green	2	14	17	6	3	3	45
Green-Grey	0	3	0	2	0	0	5
Grey	13	27	20	8	4	3	75
Blue/Black	6	10	3	5	3	1	28
Brown/black	0	0	1	0	0	0	1
Cream/black	0	3	0	2	1	0	6
Deep red/black	1	6	2	2	1	0	12
Fawn/black	1	2	2	0	0	1	6
Green/black	0	3	2	1	1	0	7
Grey/black	6	0	10	2	1	1	20
Purple/black	0	1	0	0	0	0	1
Silver/black	1	6	0	1	0	1	9
Yellow/black	0	0	0	0	0	0	0
Cream/fawn	0	1	0	0	0	0	1
Fawn/brown	1	1	0	1	0	0	3
Grey/blue	0	2	2	0	1	0	5
Grey/green	0	1	0	0	0	0	1
Two tone blue	0	2	1	0	1	1	5
Two tone brown	0	0	0	0	0	0	0
Two tone deep red	0	0	1	0	0	0	1
Two tone fawn	2	0	0	0	1	0	3
Two tone green	1	2	1	0	0	0	4
Two tone grey	5	10	5	3	4	0	27
Met beige	0	0	1	0	1	1	3
Met beige/black	0	0	0	0	1	2	3
Met green	0	2	0	0	0	0	2
Met grey/black	0	5	7	1	0	0	13
Met grey/blue	0	0	1	0	1	0	2
Met grey/grey	0	1	0	0	0	1	2
Met light blue	12	3	4	1	2	0	22
Met light grey	8	11	4	11	5	5	44
Met red	0	1	0	0	0	0	1
Met sultana	0	0	0	0	1	2	3
Two tone met blue	0	1	0	0	0	0	1
Two tone met grey	1	0	0	0	1	0	2
Total	117	239	187	106	74	41	764

red line with white on either side, for example.

Park Ward records are not complete on the presence of lining: my own car's records do not mention it, but the original photograph of the car shows that it was lined. To give an idea of the growth of lining popularity, these are the percentages of lined bodies Park Ward recorded from 1924 to 1934: 1924 21%; 1925 30%; 1926 25%; 1927 16%; 1928 27%; 1929 32%; 1930 50%; 1931 64%; 1932 62%; 1933 63%; 1934 64%.

The growth roughly parallels the increase in black and single-colour schemes.

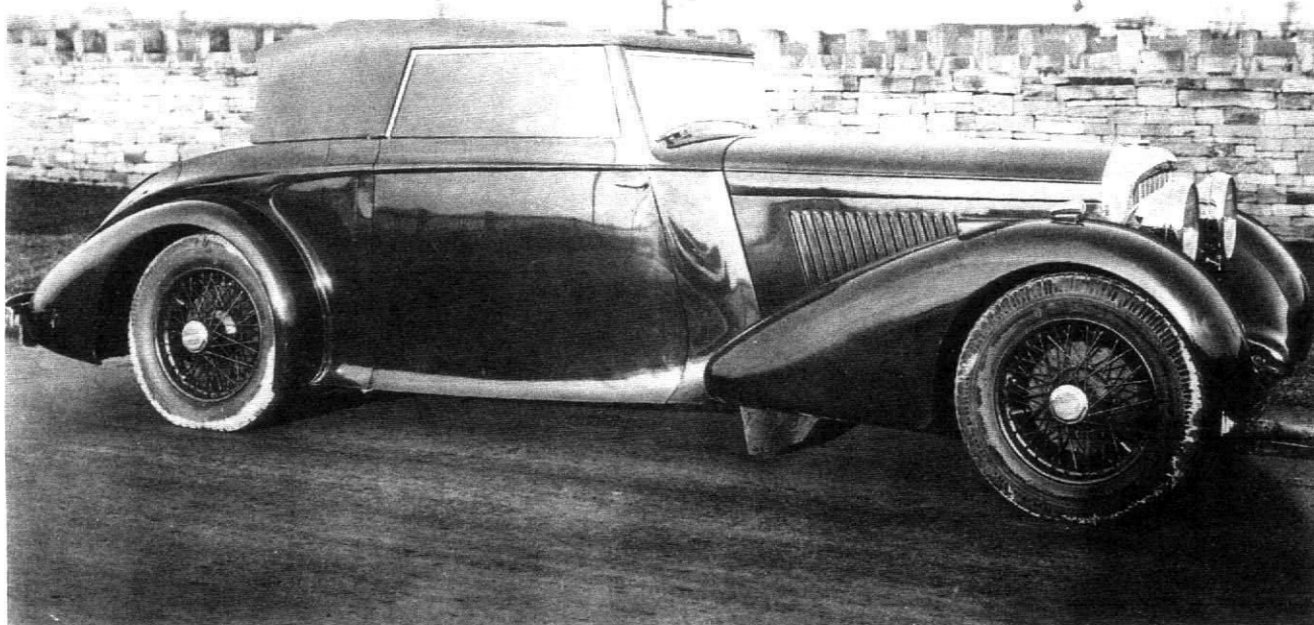
MOULDINGS

Once mouldings became a definite raised strip running along the waistline from the bonnet edge around the body, if they were not lined they either developed into a chrome strip or might be painted to contrast in a predominantly single colour scheme, usually in the upholstery colour, or as a traditional colour that toned with the body. The former was common for dark colours and black, the latter for lighter shades. I should have already mentioned that two-tone schemes at this time tended to contrast the moulding and wings in one colour with the body sides, tops and roof.

From about 1934 onward, especially where the moulding split to go down forward of the rear wing, an additional raised decoration might be superimposed on it from the windscreen back to the rear quarter. This could be painted or chromed. Inevitably, the main moulding in these cases and mouldings in contrasting colours could be lined as well: one of the ways the car could be made unique in appearance.

CREATING A LINING OR CONTRASTING MOULDING SCHEME

If you have not decided how to treat lining or moulding colour, then it is not too difficult to follow the normal steps in painting a car to experiment without expensive repainting. Start by painting the car the main colour. Then try out the lining or moulding colour scheme on one



A scheme where the body scalloping above the waist and raised section superimposed on the moulding made colour contrast or lining unnecessary—light and shade give enough interest. 1935 3 1/2 Park Ward drophead coupé, B176DG.

side of the car using removable paint—one that is water or white spirit soluble. I haven't tried it, but liquid eyeliner from ladies' makeup ranges could be a good material for trials: the range of colours is very wide and includes golds, silvers and other metallic effects. Traditional poster paint with gum arabic added to make it wet the surface is another possibility. For a broad moulding cover it with masking tape or paper attached to rubber gum, and paint that. If you are otherwise frightened of doing the trial on the car, try the scheme on a photograph.

DERBY BENTLEY COLOUR SCHEMES

These reflect the treatment of Rolls-Royce cars of the same period—often Park Ward references to a scheme go back to a Rolls-Royce

number. If anything, Bentleys were more colourful and used more metallic paint. This may reflect the desire of owners to make a standard body style distinctive. I have done a similar listing to the Rolls-Royce one, but with fewer occasions where the colours have been combined than that listing. Metallic paints are separately listed, although silver and metallic grey colours have been combined in most cases. This listing is of saloon bodies only.

Because Bentleys started with the style where the doors were full-length to the running boards, the roof was metal-skinned and the continuous waistline moulding was a normal feature, it was quite common to limit colour contrasts to the moulding and the wheels or wheel discs. The traditional two-tone of contrasting colour only on the body sides was

less usual than to include the roof, bonnet and scuttle tops as well, leaving the darker colour to the wings and moulding only.

Two-tones were usually close shades, such as two greys, although examples, especially in open cars, of ivory/blue, ivory/red and fawn/green were listed. Black cars often had a moulding matching the upholstery, and lining was as common as for contemporary Rolls-Royce cars. Upholstery often featured contrasting piping, or multi-tone leathers such as Luxan Grain and Niger Grain Vauamol from Connolly.

As a final listing, which I hope won't look too messy, I have given a listing of the paint, upholstery and hood colours possible, according to Park Ward schemes for Derby Bentley drophead coupés. The challenge now is to find the hood colours.

BENTLEY INSTRUMENTAL PANEL REPLACEMENT

By C. S. Shoup

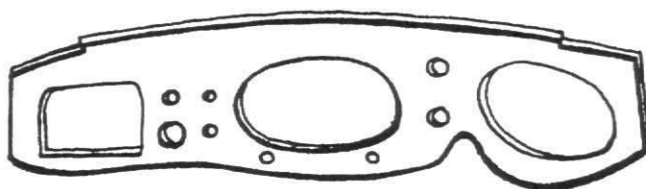
My Bentley, B180JD, is a 1936 chassis fitted with a Gurney-Nutting pillarless 2-door saloon body finished in black garnish molding with an instrument panel made of plywood built up to 3/4" and faced with a 1/4" veneer. In 1952 when I bought this car, the finish of the panel was crazed, the plies were separating, and the whole business was shedding screws right and left.

A few looks under the panel made me hesitant to remove it for duplication because of the maze of wires and inaccessible screw heads, but one evening, fortified by two beers and the spunk and experience of friend Harry Thomas, we accomplished the job.

The center group of instruments were mounted together on one plate as in the Phantom II and III cars. Speedometer and tachometer were mounted in the same casting and came out as one piece. The remaining switches and oddments were individually attached and were unscrewed separately.

Unlike many R-R chassis, the panel was not mounted to the firewall by brackets, but to the coachwork by metal straps at each end and two long screws into a body crosspiece under the windscreen. After removal of the panel, all instruments were hung from the crosspiece by string, where they continued to function during daily driving.

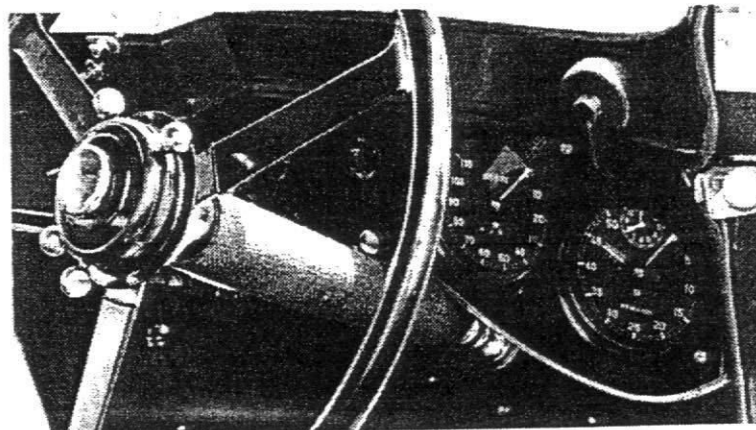
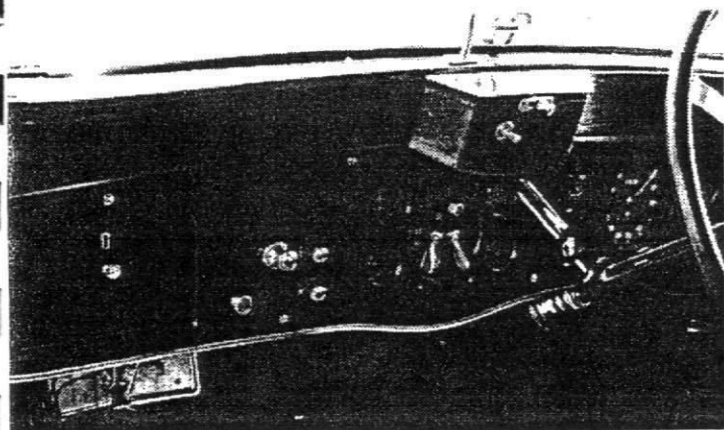
Marine plywood was chosen to replace the 3/4" backing piece. Holes for the switches and smaller instruments were drilled by the plywood supplier using the old panel as template. Since he didn't have cutters large enough for the central instrument group, the speedo-tachometer group or the glove box, this was

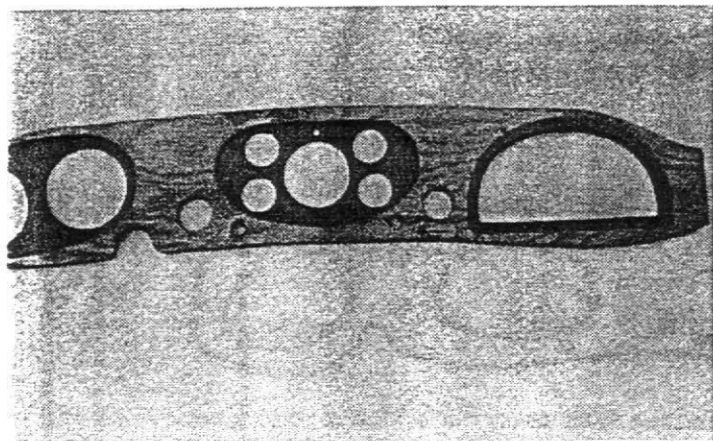


done by drilling holes along the outline of these openings with a small drill in a small electric hand drill and cutting free with a keyhole saw. The new backing panel was then installed and the instruments remounted. This added an amazing amount of stiffness to the coachwork.

Since all the interior trim is in black, it was decided to use black plastic for the 1/4" face. A suitable piece of black Plexiglas was cut for me at the Snapvent Company of Knoxville. Standard drills took care of the smaller holes. The Wagner Machine Co. of Oak Ridge, skilled in working plastics, cut the larger openings with a flycutter and beveled the edges of all except the glove compartment. I managed this last myself by scraping with the edge of a pair of heavy scissors. Cost—\$9 for the Plexiglas and \$20 for machine work.

The Plexiglas was mounted with a few oval-head plated screws with conical flush-type finishing washers. Holes for the screws were somewhat oversize to allow for expansion and contraction from temperature. For the same reason the screws were not driven completely home, but just pulled up snugly. Result: A highly satisfactory glossy-black facia.





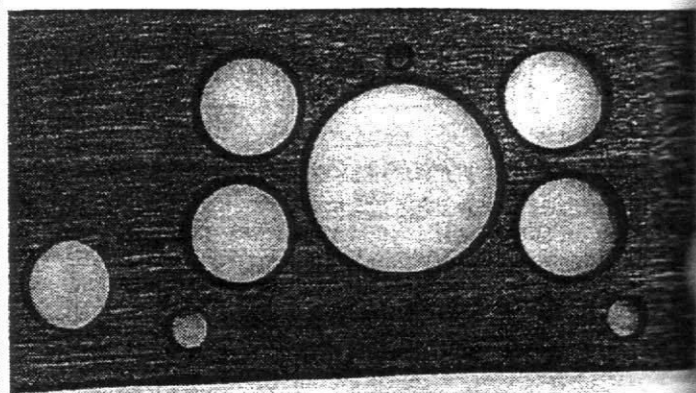
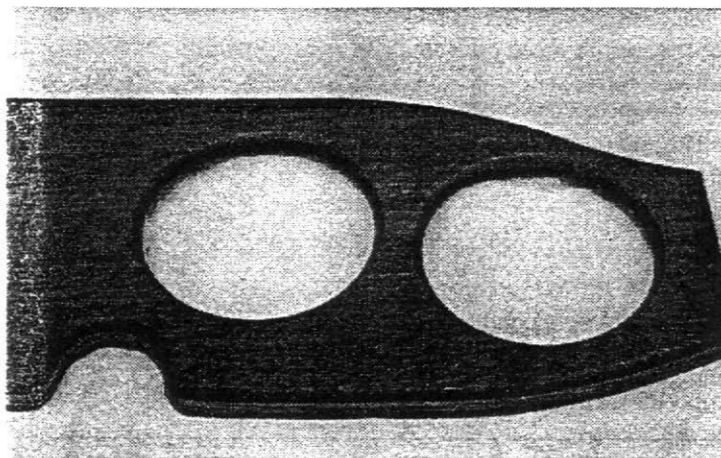
A DASHBOARD FOR BENNY

When Benny, our 1935 Bentley (B197DK) 3.5 Litre Sport Saloon by Park Ward came to roost, his dashboard was in appalling condition. The original was long gone and a hideous makeshift one—Formica-covered, yet—greeted us. Removal of the old dash was not difficult (see FL, page 1164) and it did serve as a general pattern for our replacement. Pictures of dashes from similar cars and the service sheets helped us to formulate our design.

I enlisted the aid of a friend who has a magic way with wood and the proper tools to boot. Because we wanted all instrument faces recessed, we chose $\frac{1}{4}$ " wood stock as a veneer over $\frac{1}{2}$ " exterior grade plywood base (marine plywood is available only in 4' x 8' sheets and we thought that a waste); this would allow a good thickness for beveling without exposing plywood and would supply a firm base for the instruments to rest against. Then we sent a smaller piece of wood from the car to Constantine's who did a beautiful job of matching a new piece for us to use.

Cutouts were made in the plywood for the central instrument cluster, speedometer and revolution counter, and an oversize glovebox door (Fig. 1). Next the veneer was glued to the plywood, and cutouts made for the various instrument faces using the openings in their metal holders as a guide (Fig. 1). A router provided the rounded bevel on all these holes (Fig. 2). Finally, holes were cut through both veneer and plywood for the starter button, dash and wiper switches, and the ash tray. These were not beveled.

Fig. 3 Close-up of beveled edge and speedometer-tachometer openings.



At this stage the general outlines of the panel was cut from the rectangular wood and the same bevel as for the instrument faces placed on its lower edge (Fig. 3). Gentle use of the router on the back side made it possible to fit the red lens of the warning light directly into the veneering wood. We dispensed with the central instrument cluster's face, leaving the gauges locked in their mounting plate from behind and flush against their holes from the front.

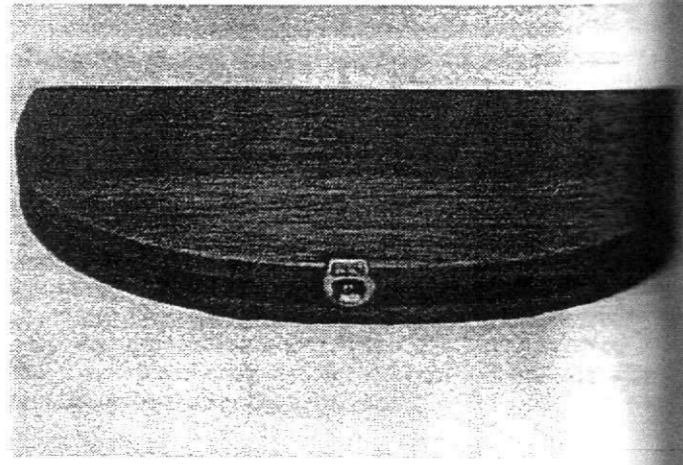
For the door a small drill and the thinnest available saber saw blade were used to cut what would be the outer panel free from the veneer. This piece was then laminated with two other veneering pieces from scrap to give the appearance of the outside wood when the door was open (Fig. 4). Carrying this idea still farther, scraps of veneer were cut to make an inlay of the same wood around the inside of the door frame (Fig. 5) so when the door is open no one would suspect the dash is not solid wood.

Cutouts were made for the hinges and new Sam hinges (available in any good hardware store or cabinet shop) were installed. A bullet catch secures the door in closed position and a small metal stop (not in picture) prevents inward movement. After sanding and filling a very hard lacquer, the kind used on band instruments, was sprayed and rubbed to a gloss (Fig. 6).

While the dash was out, there was great ease in rebuilding the clutch (fewer bumped heads), replacing defective wiring, making the scuttle ventilator work, and a rare opportunity to refinish the switchbox and starter button faces. Although there are a few departures from the original board, my co-workers and I are proud of it and I don't believe Park Ward would disown it.

Donald E. Gutting, D.D.S., St. Louis

Fig. 4 Glove box door showing lamination.



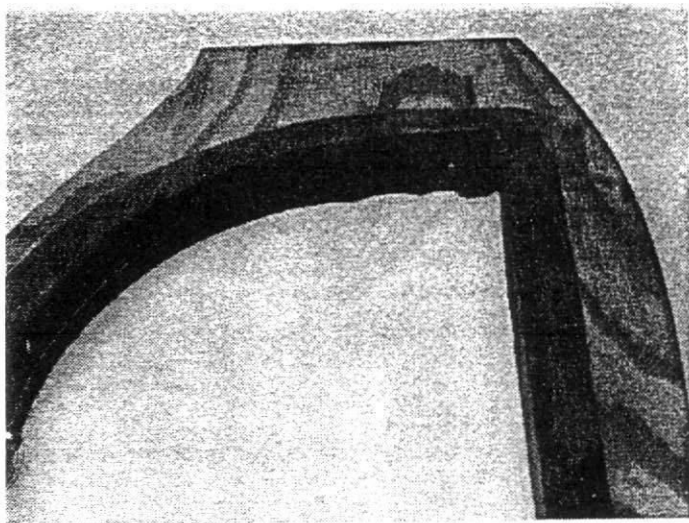


Fig 5. Inlay for glove box door frame

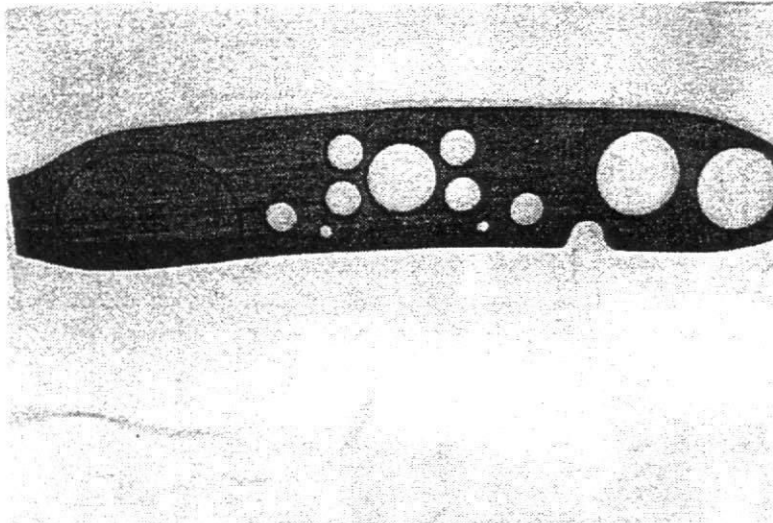
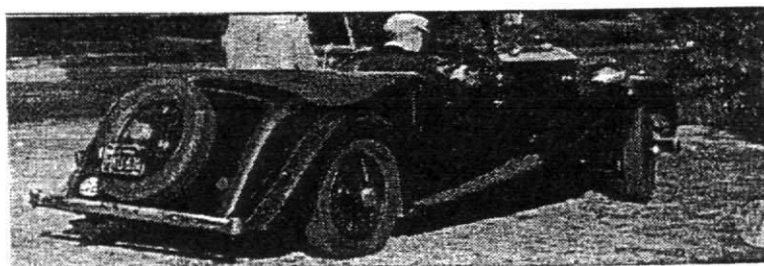
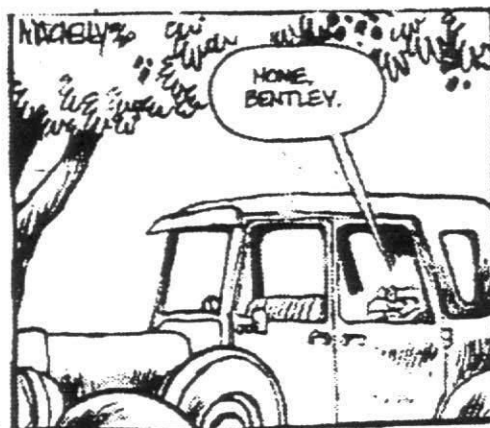


Fig 6. Completed dash, ready for mounting instruments and installation

SHOE



937 Bentley 4 1/4 l. B107KU Vanden Plas tourer, owned by David Wynne, Calif. Is somewhat similar to B109KU (p. 519) but has deeper cut doors, low fenders, and humped trunk door.

BIRTH OF THE ROLLS-ROYCE BENTLEY

By C.S. Shoup, Tenn.

W. O. Bentley, in his book "W.O. — An Autobiography" published by Hutchinson, London says on pp. 186, 187:

"When the clouds of the depression had been seen on the horizon from Derby, work had begun on a small 3/4-litre bread and butter car, a sort of scaled down 0/25 h.p., and intended to be sold at a considerably lower price. It turned out eventually to be as complicated and refined a piece of machinery as its bigger brother, and as the only saving was in the weight of metal involved, the term "economy car" was a misnomer, and the prototype was put aside. Actually it was a very nice little car, carrying a rather dainty radiator on the same classic pattern as all R-R radiators, with a good turn of speed, as I discovered when I tested it at Brooklands.

"It may have been my favorable report on this car that led Derby to try supercharging it, swapping the

R-R radiator for a slightly modified version of our old 8-litre design. This was not a success. The engine didn't care for the increased stresses and kept blowing its gasket. So, the only supercharged Rolls-Royce car never got off the bench, and the design staff looked about for other ideas.

"Once again Hives came to the rescue, as he had so often done before. I already had a very high regard for Hives' ability at experimental and development work, which was by far the strongest side of Rolls-Royce, and the way he set about the Rolls-Bentley, and later while I was there the twelve-cylinder Phantom III, confirmed my opinion.

"Hives arranged for work to be put in hand to increase the power of the new 25/30 h.p. Rolls-Royce engine, the successor to the 20/25, by fitting twin carburetors and raising the compression, and then putting it in the frame of the discarded 2 3/4 litre. The result was a very nice motor car."